

## P/ INT COOPERATION TREA

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C.20231  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 20 October 2000 (20.10.00)	
International application No. PCT/EP00/01131	Applicant's or agent's file reference RCA 89215
International filing date (day/month/year) 11 February 2000 (11.02.00)	Priority date (day/month/year) 11 February 1999 (11.02.99)
Applicant FARIZON, Arnaud et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

07 September 2000 (07.09.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Manu Berrod  Telephone No.: (41-22) 338.83.38
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> :

H01J 29/48

A1

(11) International Publication Number:

WO 00/48221

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(30) Priority Data:

99/01628

11 February 1999 (11.02.99)

FR

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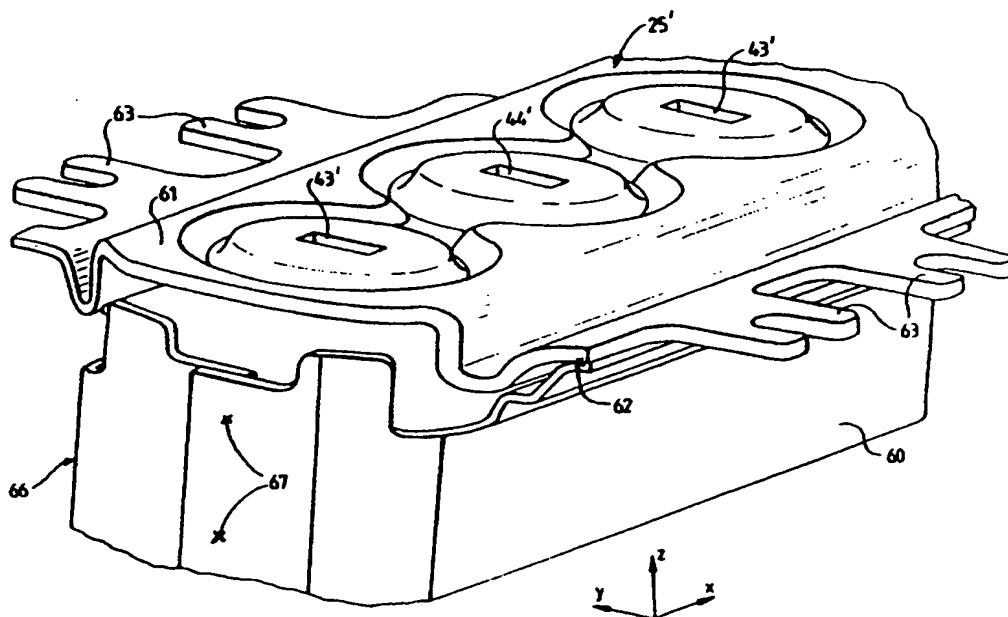
(74) Agents: RUELLAN, Brigitte et al.; Thomson Multimedia S.A., 46, Quai A. Le Gallo, F-92648 Boulogne Cedex (FR).

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(54) Title: ELECTRODE STRUCTURE FOR ELECTRON GUN



## (57) Abstract

An electron gun (5) for a cathode-ray tube (1) comprises a dish-shaped control electrode (25'). The electrode is made from three separate components: a substantially planar component (61) drilled with apertures (43, 44) so as to allow the passage of electron beams (6, 7, 8), and two identically shaped components (60, 66) intended to make a skirt serving as a support for the cathode modules (21, 22). The components (61, 60, 66) are welded together. This structure allows the construction of a control electrode serving as support for cathode modules by virtue of inexpensive components which are simple to manufacture.

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Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

# INTERNATIONAL SEARCH REPORT

International Application No  
**PCT/EP 00/01131**

**A. CLASSIFICATION OF SUBJECT MATTER**  
**IPC 7 H01J29/48**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
**IPC 7 H01J**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 842 702 A (F.R.TITCOMB ET AL.) 8 July 1958 (1958-07-08) column 1, line 72 -column 2, line 4; figure 5	1,4
X	US 2 582 454 A (ERIC POHLE) 15 January 1952 (1952-01-15) claim 5	1,4
A	FR 834 085 A (C.LORENZ AKTIENGESELLSCHAFT) 10 November 1938 (1938-11-10) * résumé *	1
A	EP 0 415 562 A (TEKTRONIX INC) 6 March 1991 (1991-03-06) claim 1	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

**22 May 2000**

Date of mailing of the international search report

**29/05/2000**

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
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Authorized officer

**Van den Bulcke, E**

# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/EP 00/01131

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2842702 A	08-07-1958	NONE	
US 2582454 A	15-01-1952	NONE	
FR 834085 A	10-11-1938	BE 426509 A GB 494644 A US 2195914 A	02-04-1940
EP 0415562 A	06-03-1991	US 5028838 A DE 69023304 D DE 69023304 T JP 2074322 C JP 3171532 A JP 7101597 B	02-07-1991 07-12-1995 28-03-1996 25-07-1996 25-07-1991 01-11-1995

G. Nojal ⇒ M. DUNN

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:	THOMSON multimedia RECEIVED
RUELLAN, Brigitte THOMSON MULTIMEDIA S.A. 46 Quai Alphonse Le Gallo F-92648 Boulogne Cedex FRANCE	16 MAI 2001 MOS Patent Department Administration - Paris

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)Date of mailing  
(day/month/year) 14.05.2001Applicant's or agent's file reference  
RCA 89215

## IMPORTANT NOTIFICATION

International application No. PCT/EP00/01131	International filing date (day/month/year) 11/02/2000	Priority date (day/month/year) 11/02/1999
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Applicant  
THOMSON LICENSING S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.


## 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



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Tel. +49 89 2399 - 0 Tlx 523656 pmu d  
Fax: +49 89 2399 - 4465

Authorized officer

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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>RCA 89215</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/EP00/01131</b>	International filing date (day/month/year) <b>11/02/2000</b>	Priority date (day/month/year) <b>11/02/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>H01J29/48</b>		
Applicant <b>THOMSON LICENSING S.A. et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
  
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I    ☒ Basis of the report
- II   ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV   ☐ Lack of unity of invention
- V    ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI   ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  <b>07/09/2000 ✓</b>	Date of completion of this report  <b>14.05.2001</b>
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399 - 0 Tlx 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized officer  <b>Chevrier, D</b>  Telephone No. +49 89 2399 2819



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/01131

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

1-5 as originally filed

### Claims, No.:

1-3 as received on 19/04/2001 with letter of 12/04/2001

### Drawings, sheets:

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP00/01131

☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-3
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-3
Industrial applicability (IA)	Yes:	Claims	1-3
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/EP00/01131

**Basis of the report (Item I)**

- 1 The amendments filed with the letter dated 12.04.2001 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT. The amendment concerned is the deletion in claim 1 of the feature that the two components are secured to the planar part (actually the control electrode 25' at points 62, see fig. 5).

**Certain observations on the international application (clarity) (Item VIII)**

- 2 It is not clear from claim 1 if "the planar part" on line 5 corresponds to "the planar component" defined on line 11. The applicant is reminded that the same terminology should be used in an independent claim for defining the same features (see Rule 10.2 PCT). In case of doubt, the terminology of the description should be used.
- 3 Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art document US-A-2 842 702 (see point 5.1 below) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 4 The subject-matter of claim 2 is not clear because "the cathode supports" are not previously defined.

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement (Item V)**

- 5 The present application does not meet the requirements of Article 33(3) PCT.
- 5.1 Document US-A-2 842 702 (see fig. 5 and corresponding text) discloses an electron gun of a cathode ray tube. The electron gun comprises a cathode (15) for

emitting an electron beam, a disc-shaped electrode (10) having a planar part and an aperture (11), a skirt formed with two metal components (6,7) secured to one another and to the planar part, and a cathode support (17) secured to the lateral skirt. The subject-matter of claim 1 differs from the electron gun disclosed in US-A-2 842 702 only in that the ends of the two components overlap at least partially and are secured to one another at points of the overlap.

Overlapping the ends of the two components and securing them at points is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to join the two components forming the lateral skirt. Therefore, the subject-matter of claim 1 does not involve an inventive step in the sense of Rule 65 PCT.

- 5.2 Dependent claims 2 and 3 disclose additional features known from US-A-2 842 702 so that a combination of these claims with any claim to which they refer, does not meet the requirements of the PCT in respect of inventive step.

09/889110.

## PATENT COOPERATION TREATY

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REC'D 15 MAY 2001

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RCA 89215	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/01131	International filing date (day/month/year) 11/02/2000	Priority date (day/month/year) 11/02/1999
International Patent Classification (IPC) or national classification and IPC H01J29/48		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

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- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  07/09/2000	Date of completion of this report  14.05.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Chevrier, D  Telephone No. +49 89 2399 2819  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/01131

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-5 as originally filed

**Claims, No.:**

1-3 as received on 19/04/2001 with letter of 12/04/2001

**Drawings, sheets:**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/01131

☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims 1-3
	No:	Claims
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-3
Industrial applicability (IA)	Yes:	Claims 1-3
	No:	Claims

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/EP00/01131

**Basis of the report (Item I)**

- 1 The amendments filed with the letter dated 12.04.2001 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT. The amendment concerned is the deletion in claim 1 of the feature that the two components are secured to the planar part (actually the control electrode 25' at points 62, see fig. 5).

**Certain observations on the international application (clarity) (Item VIII)**

- 2 It is not clear from claim 1 if "the planar part" on line 5 corresponds to "the planar component" defined on line 11. The applicant is reminded that the same terminology should be used in an independent claim for defining the same features (see Rule 10.2 PCT). In case of doubt, the terminology of the description should be used.
- 3 Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art document US-A-2 842 702 (see point 5.1 below) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 4 The subject-matter of claim 2 is not clear because "the cathode supports" are not previously defined.

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement (Item V)**

- 5 The present application does not meet the requirements of Article 33(3) PCT.
  - 5.1 Document US-A-2 842 702 (see fig. 5 and corresponding text) discloses an electron gun of a cathode ray tube. The electron gun comprises a cathode (15) for

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/EP00/01131

emitting an electron beam, a disc-shaped electrode (10) having a planar part and an aperture (11), a skirt formed with two metal components (6,7) secured to one another and to the planar part, and a cathode support (17) secured to the lateral skirt. The subject-matter of claim 1 differs from the electron gun disclosed in US-A-2 842 702 only in that the ends of the two components overlap at least partially and are secured to one another at points of the overlap.

Overlapping the ends of the two components and securing them at points is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to join the two components forming the lateral skirt. Therefore, the subject-matter of claim 1 does not involve an inventive step in the sense of Rule 65 PCT.

- 5.2 Dependent claims 2 and 3 disclose additional features known from US-A-2 842 702 so that a combination of these claims with any claim to which they refer, does not meet the requirements of the PCT in respect of inventive step.



CLAIMS

1 - An electron gun comprising at least one cathode (50) for emitting an electron beam, a dish-shaped control electrode G1 comprising  
5 a substantially planar part (61) provided with at least one aperture (43',44') for the passage of the electron beam emanating from the cathode and a skirt at least partially surrounding the cathode, and means for supporting the cathode so as to keep the latter at a specified distance from the electrode G1, wherein the control electrode G1 (25') comprises  
10 at least three separate metal components :

- a substantially planar component (61) drilled with apertures (43',44') which are intended to face each cathode (21,22),
- at least two metal components (60,66) forming the lateral skirt at least partially surrounding the cathode, the ends of the two  
15 components (60,66) overlap at least partially and are secured to one another at points (67) of the overlap.

2 - The electron gun according to claim 1 or 2, wherein the cathode supports are secured to the lateral skirt (60,66).  
20

3 - A cathode-ray tube comprising an electron gun in accordance with any one of the preceding claims.

ART 34 AMDT

CLAIMS

1 - An electron gun comprising at least one cathode (50) for emitting an electron beam, a dish-shaped control electrode G1 comprising  
5 a substantially planar part (61) provided with at least one aperture (43',44') for the passage of the electron beam emanating from the cathode and a skirt at least partially surrounding the cathode, and means for supporting the cathode so as to keep the latter at a specified distance from the electrode G1, wherein the control electrode G1 (25') comprises  
10 at least three separate metal components :

- a substantially planar component (61) drilled with apertures (43',44') which are intended to face each cathode (21,22),
- at least two metal components (60,66) forming the lateral skirt at least partially surrounding the cathode, the ends of the two  
15 components (60,66) overlap at least partially and are secured to one another at points (67) of the overlap.

2 - The electron gun according to claim 1 or 2, wherein the cathode supports are secured to the lateral skirt (60,66).  
20

3 - A cathode-ray tube comprising an electron gun in accordance with any one of the preceding claims.

add A3  
abstract

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>RCA 89215</b>	<b>FOR FURTHER ACTION</b> <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. <b>PCT/EP 00/ 01131</b>	International filing date (day/month/year) <b>11/02/2000</b>	(Earliest) Priority Date (day/month/year) <b>11/02/1999</b>
Applicant  <b>THOMSON LICENSING S.A. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

6

☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP 00/01131

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01J29/48

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 842 702 A (F.R.TITCOMB ET AL.) 8 July 1958 (1958-07-08) column 1, line 72 -column 2, line 4; figure 5	1,4
X	US 2 582 454 A (ERIC POHLE) 15 January 1952 (1952-01-15) claim 5	1,4
A	FR 834 085 A (C.LORENZ AKTIENGESELLSCHAFT) 10 November 1938 (1938-11-10) * résumé *	1
A	EP 0 415 562 A (TEKTRONIX INC) 6 March 1991 (1991-03-06) claim 1	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

22 May 2000

Date of mailing of the international search report

29/05/2000

Name and mailing address of the ISA

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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Van den Bulcke, E

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/01131

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2842702	A	08-07-1958	NONE	
US 2582454	A	15-01-1952	NONE	
FR 834085	A	10-11-1938	BE 426509 A GB 494644 A US 2195914 A	02-04-1940
EP 0415562	A	06-03-1991	US 5028838 A DE 69023304 D DE 69023304 T JP 2074322 C JP 3171532 A JP 7101597 B	02-07-1991 07-12-1995 28-03-1996 25-07-1996 25-07-1991 01-11-1995

6  
CLAIMS

1. An electron gun comprising at least one cathode for emitting an electron beam, a dish-shaped control electrode G1 comprising a substantially planar part provided with at least one aperture for the passage of the electron  
5 beam emanating from the cathode and a skirt at least partially surrounding the cathode, and means for supporting the cathode so as to keep the latter at a specified distance from the electrode G1, wherein the control electrode G1 (25') comprises at least three separate metal components:
  - a substantially planar component (61) drilled with apertures (43', 44')  
10 which are intended to face each cathode (21, 22),
  - at least two metal components (60, 66) forming the lateral skirt at least partially surrounding the cathode, the two components being secured to one another as well as to the planar part.
- 15 2. The electron gun according to claim 1, wherein the ends of the two components (60, 66) forming the lateral skirt overlap at least partially and are secured at points (67) on the overlap.
3. The electron gun according to claim 1 or 2, wherein the cathode  
20 supports are secured to the lateral skirt (60, 66).
4. A cathode-ray tube comprising an electron gun in accordance with any one of the preceding claims.

## INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/EP 00/01131A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H01J29/48

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"A" document member of the same patent family

Date of the actual completion of the international search

22 May 2000

Date of mailing of the international search report

29/05/2000

Name and mailing address of the ISA

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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Van den Bulcke, E

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/01131

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2842702	A	08-07-1958	NONE	
US 2582454	A	15-01-1952	NONE	
FR 834085	A	10-11-1938	BE 426509 A GB 494644 A US 2195914 A	02-04-1940
EP 0415562	A	06-03-1991	US 5028838 A DE 69023304 D DE 69023304 T JP 2074322 C JP 3171532 A JP 7101597 B	02-07-1991 07-12-1995 28-03-1996 25-07-1996 25-07-1991 01-11-1995



INSTITUT NATIONAL  
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RAPPORT DE RECHERCHE  
PRELIMINAIRE

établi sur la base des dernières revendications  
déposées avant le commencement de la recherche

N° d'enregistrement  
national

FA 568151  
FR 9901628

DOCUMENTS CONSIDERES COMME PERTINENTS		Revendications concernées de la demande examinée
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes	
X	US 2 842 702 A (F.R.TITCOMB ET AL.) 8 juillet 1958 (1958-07-08) * colonne 1, ligne 72 - colonne 2, ligne 4; figure 5 *	1,4
X	US 2 582 454 A (ERIC POHLE) 15 janvier 1952 (1952-01-15) * revendication 5 *	1,4
A	FR 834 085 A (C. LORENZ AKTIENGESELLSCHAFT) 10 novembre 1938 (1938-11-10) * résumé *	1
A	EP 0 415 562 A (TEKTRONIX INC) 6 mars 1991 (1991-03-06) * revendication 1 *	1
		DOMAINES TECHNIQUES RECHERCHES (Int.CL.6)
		H01J
Date d'achèvement de la recherche		Examineur
21 octobre 1999		Van den Bulcke, E
CATEGORIE DES DOCUMENTS CITES		
X : particulièrement pertinent à lui seul Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie A : pertinent à l'encontre d'au moins une revendication ou arrière-plan technologique général O : divulgation non-écrite P : document intercalaire		
T : théorie ou principe à la base de l'invention E : document de brevet bénéficiant d'une date antérieure à la date de dépôt et qui n'a été publié qu'à cette date de dépôt ou qu'à une date postérieure. D : cité dans la demande L : cité pour d'autres raisons & : membre de la même famille, document correspondant		

**ANNEXE AU RAPPORT DE RECHERCHE PRELIMINAIRE  
RELATIF A LA DEMANDE DE BREVET FRANÇAIS NO.**

FA 568151  
FR 9901628

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche préliminaire visé ci-dessus.  
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ni de l'Administration française

21-10-1999

Document brevet cité au rapport de recherche	Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
US 2842702 A	08-07-1958	AUCUN	
US 2582454 A	15-01-1952	AUCUN	
FR 834085 A	10-11-1938	BE 426509 A GB 494644 A US 2195914 A	02-04-1940
EP 0415562 A	06-03-1991	US 5028838 A DE 69023304 D DE 69023304 T JP 2074322 C JP 3171532 A JP 7101597 B	02-07-1991 07-12-1995 28-03-1996 25-07-1996 25-07-1991 01-11-1995